YAMAHA MBK

XQ125 2001
5HT1-AE2

XQ150

SERVICE MANUAL

EASM0000

XQ125 / XQ150
SERVICE MANUAL
© 2001 by MBK Industrie
2nd edition, April 2001
All rights reserved.
Any reproduction or unauthorized use without the written permission of MBK Industrie is expressly prohibited.

EASM0001

NOTICE

This manual was produced by the MBK Industrie primarily for use by Yamaha and MBK dealers and their qualified mechanics. It is not possible to include all the knowledge of a mechanic in one manual. Therefore, anyone who uses this book to perform maintenance and repairs on Yamaha and MBK vehicles should have a basic understanding of mechanics and the techniques to repair these types of vehicles. Repair and maintenance work attempted by anyone without this knowledge is likely to render the vehicle unsafe and unfit for use.

MBK Industrie is continually striving to improve all of its models. Modifications and significant changes in specifications or procedures will be forwarded to all authorized Yamaha and MBK dealers and will appear in future editions of this manual where applicable.

NOTE:
Designs and specifications are subject to change without notice.

TECHNICAL DOCUMENTATION
MBK INDUSTRIE

EAS00005

IMPORTANT MANUAL INFORMATION

Particularly important information is distinguished in this manual by the following.

⚠ The Safety Alert Symbol means ATTENTION! BECOME ALERT! YOUR SAFETY IS INVOLVED!

⚠ WARNING Failure to follow WARNING instructions could result in severe injury or death to the scooter operator, a bystander or a person checking or repairing the scooter.

CAUTION: A CAUTION indicates special precautions that must be taken to avoid damage to the scooter.

NOTE: A NOTE provides key information to make procedures easier or clearer.

EAS00007

HOW TO USE THIS MANUAL

This manual is intended as a handy, easy-to-read reference book for the mechanic. Comprehensive explanations of all installation, removal, disassembly, assembly, repair and check procedures are laid out with the individual steps in sequential order.

① The manual is divided into chapters. An abbreviation and symbol in the upper right corner of each page indicate the current chapter. Refer to "SYMBOLS".

② Each chapter is divided into sections. The current section title is shown at the top of each page, except in Chapter 3 ("PERIODIC CHECKS AND ADJUSTMENTS"), where the sub-section title(s) appears.

③ Sub-section titles appear in smaller print than the section title.

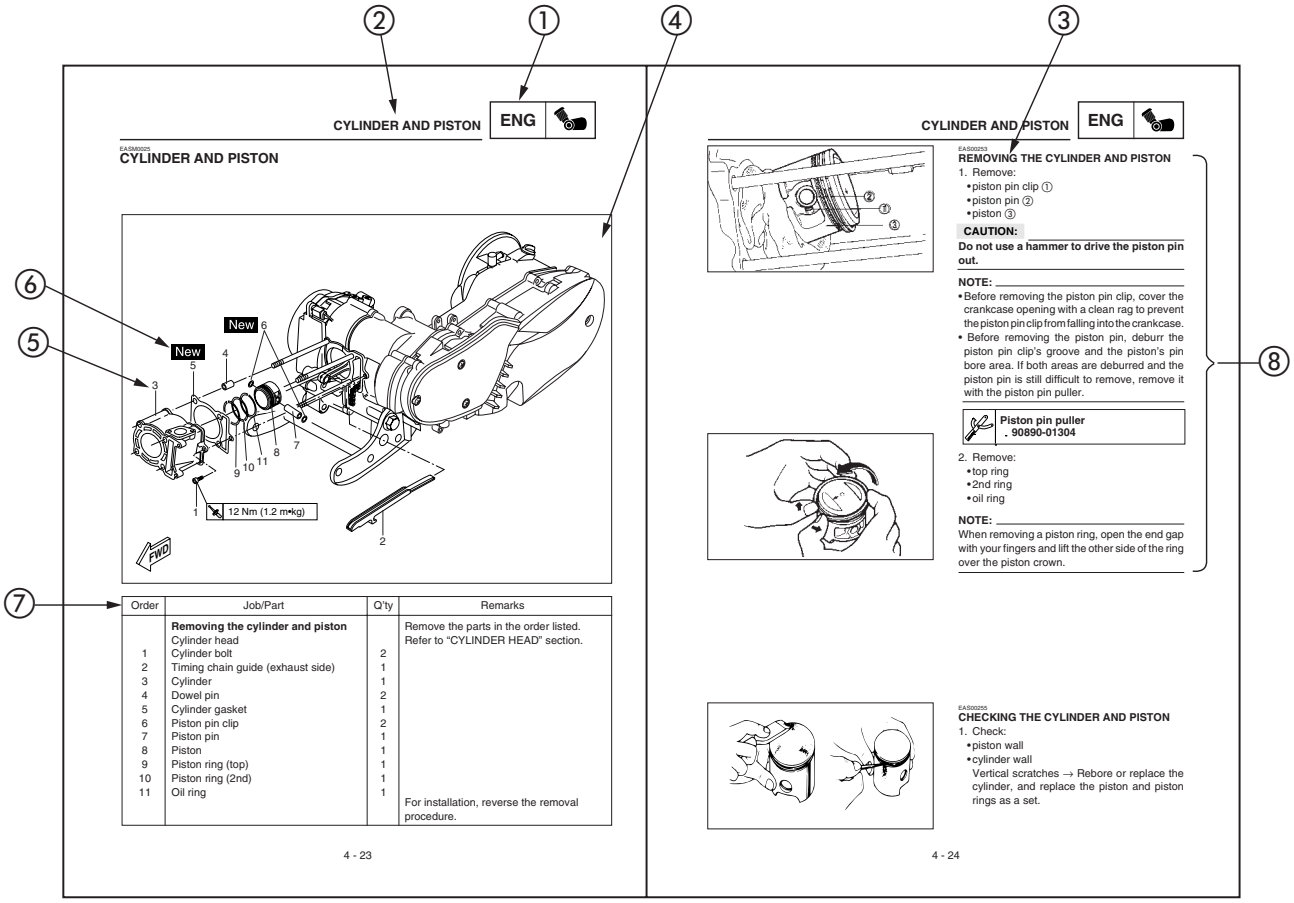
④ To help identify parts and clarify procedure steps, there are exploded diagrams at the start of each removal and disassembly section.

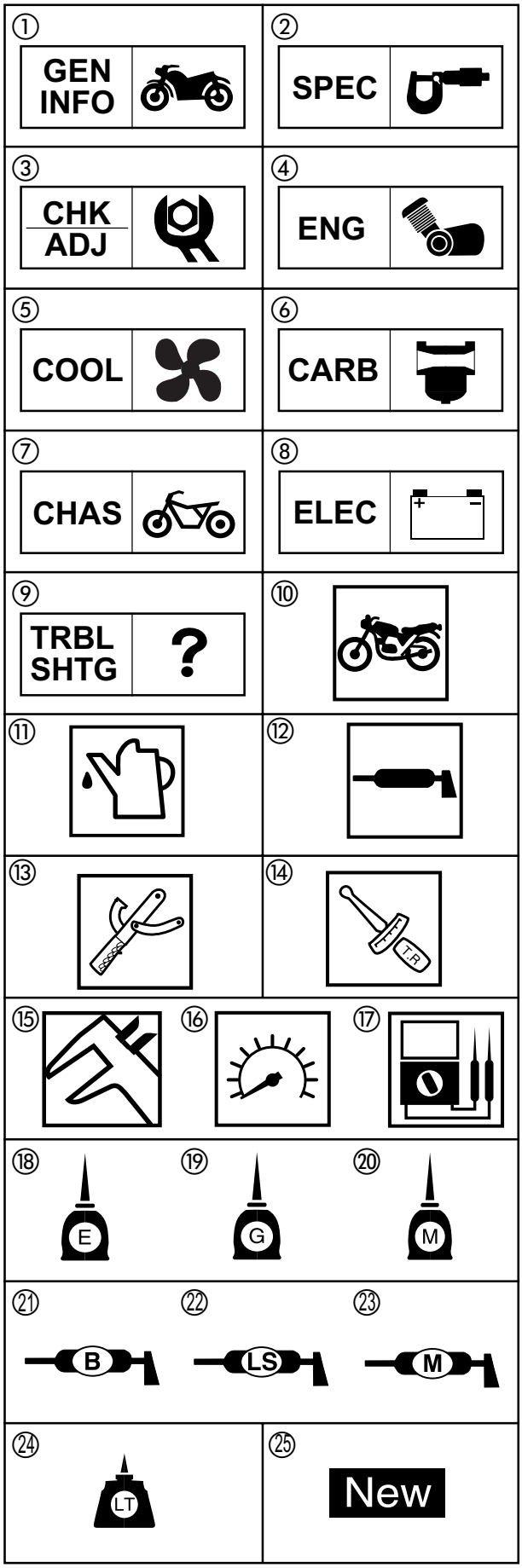
⑤ Numbers are given in the order of the jobs in the exploded diagram. A circled number indicates a disassembly step.

⑥ Symbols indicate parts to be lubricated or replaced. Refer to "SYMBOLS".

⑦ A job instruction chart accompanies the exploded diagram, providing the order of jobs, names of parts, notes in jobs, etc.

⑧ Jobs requiring more information (such as special tools and technical data) are described sequentially.


②
①
④
③
⑥
⑤
⑦
⑧
CYLINDER AND PISTON
ENG
EAS00220
CYLINDER AND PISTON
New
12 Nm (1.2 m•kg)
FWD
Order
Job/Part
Q'ty
Remarks
Removing the cylinder and piston
Cylinder head
1 Cylinder bolt 2
2 Timing chain guide (exhaust side) 1
3 Cylinder 1
4 Dowel pin 2
5 Cylinder gasket 1
6 Piston pin clip 2
7 Piston pin 1
8 Piston 1
9 Piston ring (top) 1
10 Piston ring (2nd) 1
11 Oil ring 1
Remove the parts in the order listed.
Refer to "CYLINDER HEAD" section.
For installation, reverse the removal procedure.
4 - 23
CYLINDER AND PISTON
ENG
EAS00220
REMOVING THE CYLINDER AND PISTON
1. Remove:
• piston pin clip ①
• piston pin ②
• piston ③
CAUTION:
Do not use a hammer to drive the piston pin out.
NOTE:
• Before removing the piston pin clip, cover the crankcase opening with a clean rag to prevent the piston pin clip from falling into the crankcase.
• Before removing the piston pin, deburr the piston pin clip's groove and the piston's pin bore area. If both areas are deburred and the piston pin is still difficult to remove, remove it with the piston pin puller.
Piston pin puller
. 90890-01304
2. Remove:
• top ring
• 2nd ring
• oil ring
NOTE:
When removing a piston ring, open the end gap with your fingers and lift the other side of the ring over the piston crown.
EAS00230
CHECKING THE CYLINDER AND PISTON
1. Check:
• piston wall
• cylinder wall
Vertical scratches → Rebore or replace the cylinder, and replace the piston and piston rings as a set.
4 - 24



EAS00008

SYMBOLS

The following symbols are not relevant to every vehicle.

Symbols ① to ⑨ indicate the subject of each chapter.

① General information
② Specifications
③ Periodic checks and adjustments
④ Engine
⑤ Cooling system
⑥ Carburetor
⑦ Chassis
⑧ Electrical system
⑨ Troubleshooting

Symbols ⑩ to ⑰ indicate the following.

⑩ Serviceable with engine mounted
⑪ Filling fluid
⑫ Lubricant
⑬ Special tool
⑭ Tightening torque
⑮ Wear limit, clearance
⑯ Engine speed
⑰ Electrical data

Symbols ⑱ to ㉓ in the exploded diagrams indicate the types of lubricants and lubrication points.

⑱ Engine oil
⑲ Gear oil
⑳ Molybdenum disulfide oil
㉑ Wheel bearing grease
㉒ Lithium soap base grease
㉓ Molybdenum disulfide grease

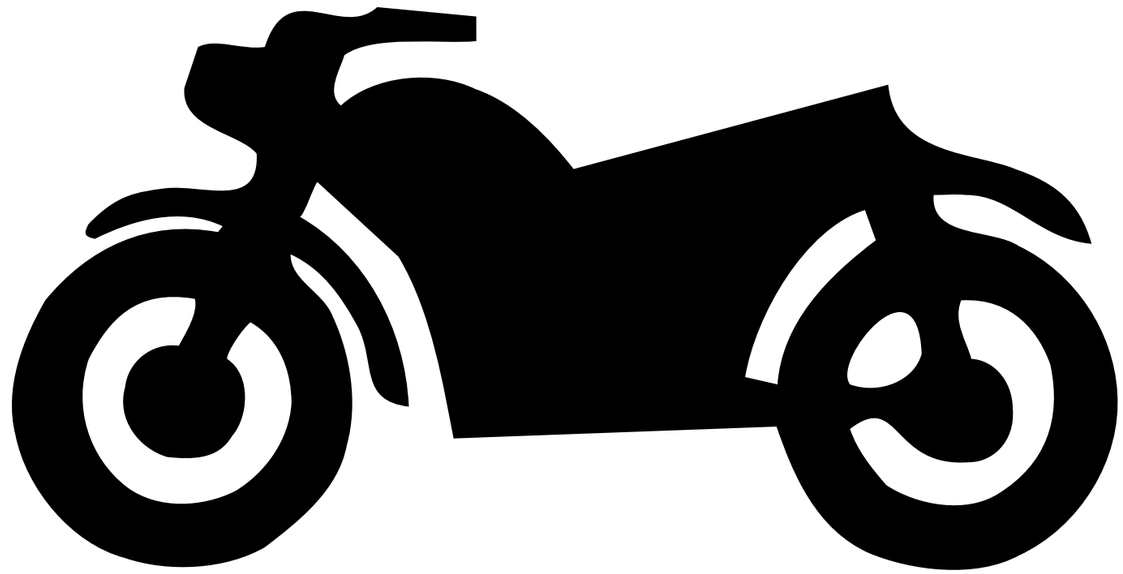
Symbols ㉔ to ㉕ in the exploded diagrams indicate the following.

㉔ Apply locking agent (LOCTITE®)
㉕ Use a new one

EAS00010

TABLE OF CONTENTS

GENERAL INFORMATION	GEN INFO 1
SPECIFICATIONS	SPEC 2
PERIODIC CHECKS AND ADJUSTMENTS	CHK ADJ 3
ENGINE OVERHAUL	ENG 4
COOLING SYSTEM	COOL 5
CARBURETOR	CARB 6
CHASSIS	CHAS 7
ELECTRICAL SYSTEM	ELEC 8
TROUBLESHOOTING	TRBL SHTG 9



GEN INFO

1

CHAPTER 1.
GENERAL INFORMATION

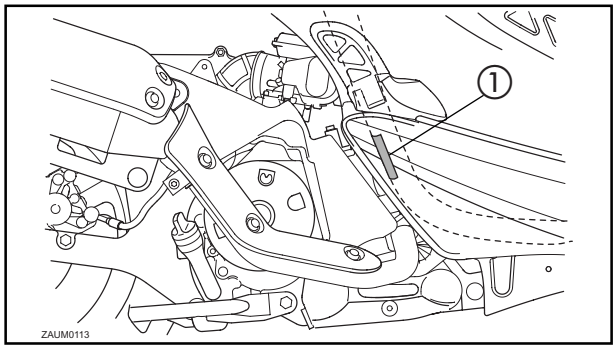
SCOOTER IDENTIFICATION 1-1
VEHICLE IDENTIFICATION NUMBER 1-1
MODEL LABEL 1-1

FEATURES 1-2
OIL INDICATOR LIGHT 1-2
ODOMETER/TRIPMETER READING MODE 1-2
BATTERY VOLTAGE/FUEL GAUGE 1-2
THE CLOCK 1-3
AUTO-CHOKE SYSTEM 1-3

IMPORTANT INFORMATION 1-4
PREPARATION FOR REMOVAL AND DISASSEMBLY 1-4
REPLACEMENT PARTS 1-4
GASKETS, OIL SEALS AND O-RINGS 1-4
LOCK WASHERS/PLATES AND COTTER PINS 1-5
BEARINGS AND OIL SEALS 1-5
CIRCLIPS 1-5

CHECKING THE CONNECTIONS 1-6

SPECIAL TOOLS 1-7



EAS00015

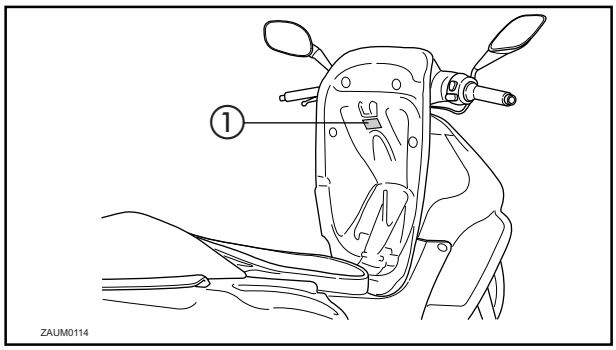
GENERAL INFORMATION

SCOOTER IDENTIFICATION

EASM0002

VEHICLE IDENTIFICATION NUMBER

The vehicle identification number ① is stamped into the frame.



EASM0003

MODEL LABEL

The model label ① is affixed under the seat. This information will be needed to order spare parts.

EASM0004
FEATURES

OIL INDICATOR LIGHT

• FUNCTION

Pulses (travel distance signals) from the speedometer are counted and cause the oil indicator light to come on at 500 km for the first time and thereafter every 3,000 km. In this way, the light indicates the time for oil change.

• RESETTING PROCEDURE

To reset the oil change indicator light

1) Press the “TRIP” button while turning the key to “ON”.
2) Release the button and the oil change indicator light will go off.

NOTE:

To reset the oil change indicator light before the periodic oil change interval has been reached, follow the above procedure.

ODOMETER/TRIPMETER READING MODE

The odometer and tripmeter can be set to count in either miles or kilometers according to the following procedure.

1) Turn the key to “ON”.
2) Press the “TRIP” button until the current mode appears in the dispaly:
   “CONT” (continental) for kilometer mode and “EnGL” (English) for the mile mode.
3) Press the “TRIP” button to switch mode.
4) Press the “TRIP” button for two seconds to confirm the setting.

NOTE:

- The odometer/tripmeter reading mode can be changed any number of times while the odometer reading is below 10, but it cannot changed anymore after the reading has reached 10.
- Switching between the mile and the kilometer mode does not change or convert the current odometer/tripmeter reading.

BATTERY VOLTAGE/FUEL GAUGE

When the key is turned to “OFF”, the voltage/fuel gauge indicates the battery voltage.

NOTE:

If the battery voltage drops to 10V, refer to “CHECKING THE BATTERY” section in chapter 3.

When the key is turned to “ON”, the voltage/fuel gauge indicates the amount of fuel in the fuel tank after indicating the battery voltage for two seconds.

THE CLOCK

• Setting the clock

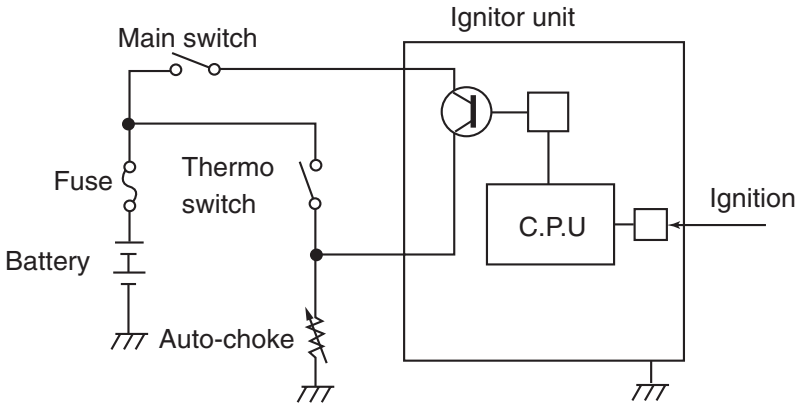
To set the clock:

1) Make sure that the key is turned to “OFF”.
2) Press the “TRIP” button for two seconds and the hour display will flash.
3) Press the “TRIP” button to set the hours.
4) Press the “TRIP” button for two seconds, and the first minute digit will flash.
5) Press the “TRIP” button to set the first minute digit.
6) Press the “TRIP” button for two more seconds, and the second minute digit will flash.
7) Press the “TRIP” button to set the second minute digit.
8) Press the “TRIP” button for two seconds to set the clock.

AUTO-CHOKE SYSTEM

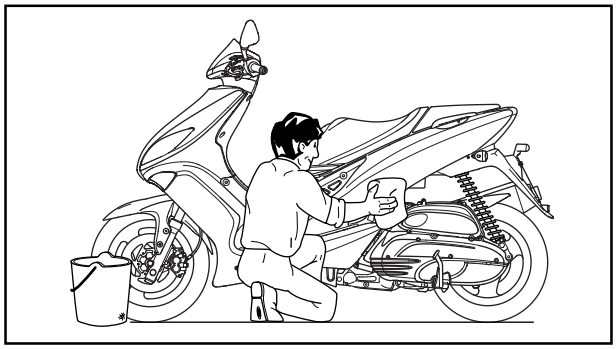
This system is the parallel connection of the ignitor unit circuit and the thermo switch as shown, detecting the engine temperature, and facilitates the restarting with the warm engine.

• Circuit diagram

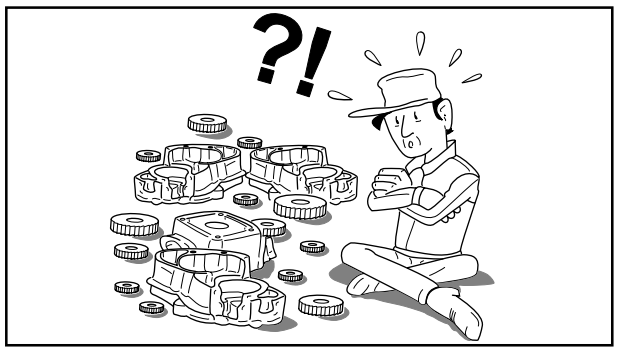


• Auto-choke operation

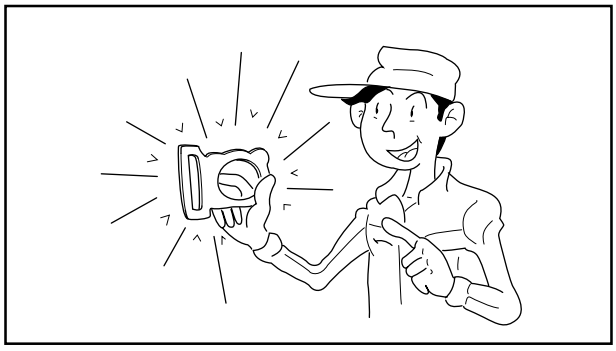
Engine condition	Start with the cold engine	Crank with the cold engine	Crank with the warm engine	Restart with the warm engine
Thermo switch	OFF	OFF	ON	ON
Ignitor unit circuit	OFF	ON	ON	OFF
Auto-choke	Activates	Activates	Not activate	Not activate



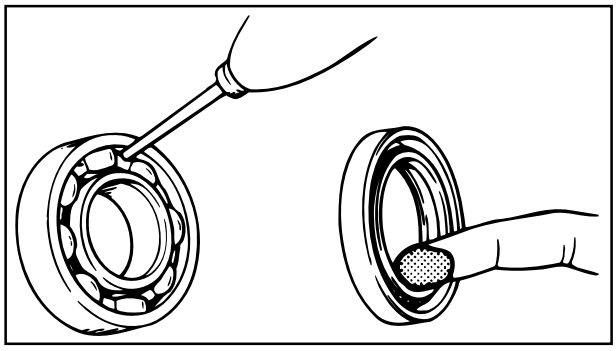
EAS00020
IMPORTANT INFORMATION
PREPARATION FOR REMOVAL AND DISASSEMBLY
1. Before removal and disassembly, remove all dirt, mud, dust and foreign material.
2. Use only the proper tools and cleaning equipment.
   Refer to the “SPECIAL TOOLS”.



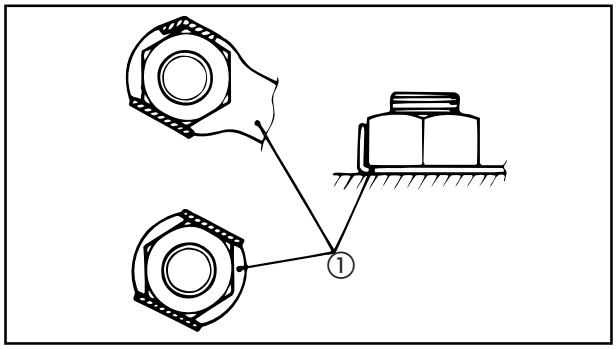
3. When disassembling, always keep mated parts together. This includes gears, cylinders, pistons and other parts that have been “mated” through normal wear. Mated parts must always be reused or replaced as an assembly.
4. During disassembly, clean all of the parts and place them in trays in the order of disassembly. This will speed up assembly and allow for the correct installation of all parts.
5. Keep all parts away from any source of fire.



EAS00021
REPLACEMENT PARTS
1. Use only genuine Yamaha and MBK parts for all replacements. Use oil and grease recommended by Yamaha or MBK for all lubrication jobs. Other brands may be similar in function and appearance, but inferior in quality.

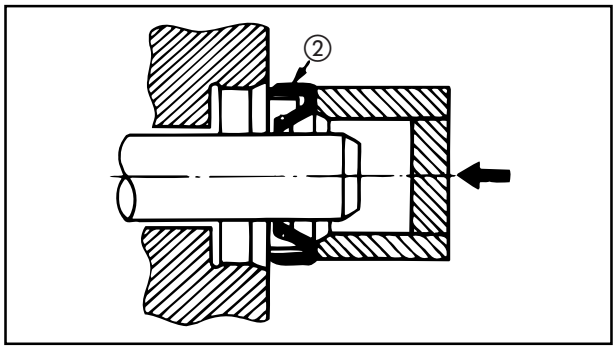


EAS00022
GASKETS, OIL SEALS AND O-RINGS
1. When overhauling the engine, replace all gaskets, seals and O-rings. All gasket surfaces, oil seal lips and O-rings must be cleaned.
2. During reassembly, properly oil all mating parts and bearings and lubricate the oil seal lips with grease.



EAS00023
LOCK WASHERS / PLATES AND COTTER PINS

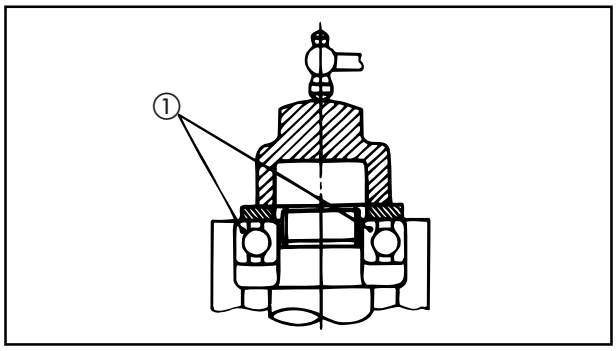
1. After removal, replace all lock washers / plates ① and cotter pins. After the bolt or nut has been tightened to specification, bend the lock tabs along a flat of the bolt or nut.



EAS00024
BEARINGS AND OIL SEALS

1. Install bearings and oil seals so that the manufacturer's marks or numbers are visible. When installing oil seals, lubricate the oil seal lips with a light coat of lithium soap base grease. Oil bearings liberally when installing, if appropriate.

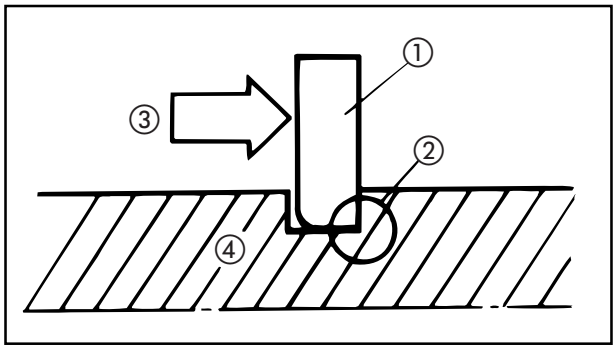
② Oil seal



CAUTION:

Do not spin the bearing with compressed air because this will damage the bearing surfaces.

① Bearing



EAS00025
CIRCLIPS

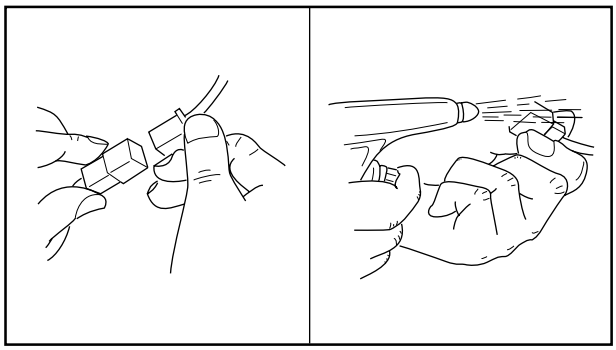
1. Before reassembly, check all circlips carefully and replace damaged or distorted circlips. Always replace piston pin clips after one use. When installing a circlip ①, make sure the sharp-edged corner ② is positioned opposite the thrust ③ that the circlip receives.

④ Shaft

EAS00026
CHECKING THE CONNECTIONS

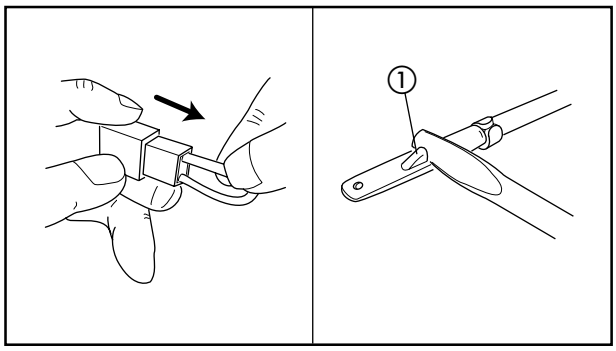
Check the leads, couplers, and connectors for stains, rust, moisture, etc.

1. Disconnect:
   - lead
   - coupler
   - connector



2. Check:
   - lead
   - coupler
   - connector

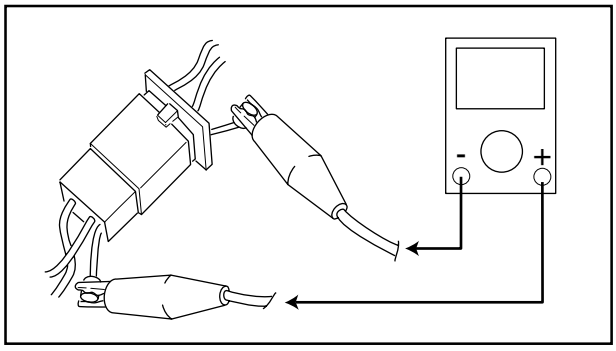
   Moisture → Dry with an air blower.
   Rust/stains → Connect and disconnect several times.



3. Check:
   - all connections

   Loose connection → Connect properly.

NOTE:
If the pin ① on the terminal is flattened, bend it up.

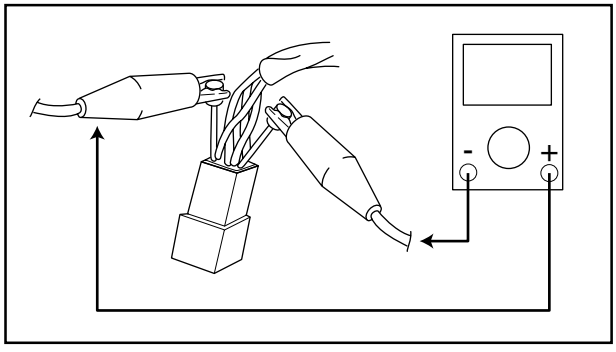


4. Connect:
   - lead
   - coupler
   - connector

NOTE:
Make sure all connections are tight.

5. Check:
   - continuity

   (with the pocket tester)

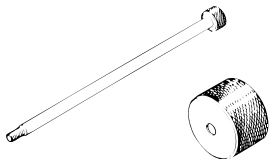
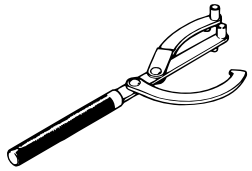
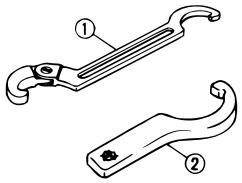
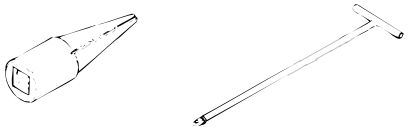
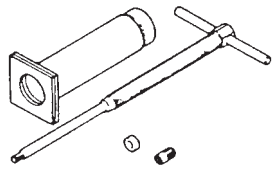
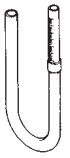
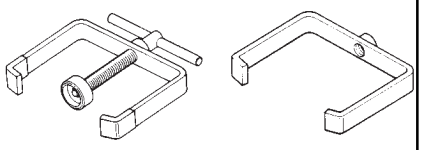


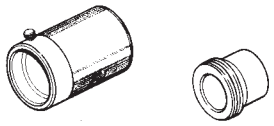
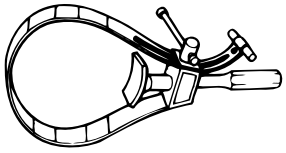
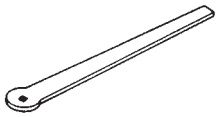
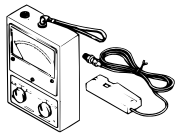
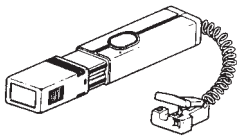
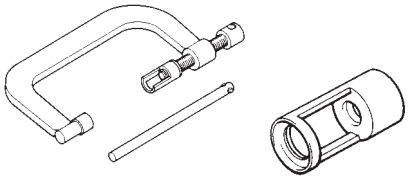
	Pocket tester **90890-03112**

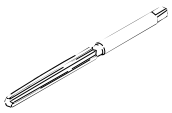
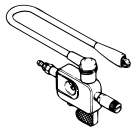
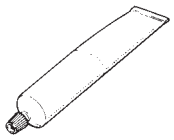
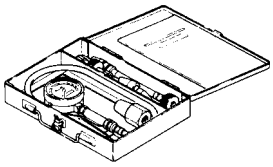
NOTE:
- If there is no continuity, clean the terminals.
- When checking the wire harness, perform steps 1 to 3.
- As a quick remedy, use a contact revitalizer available at most part stores.

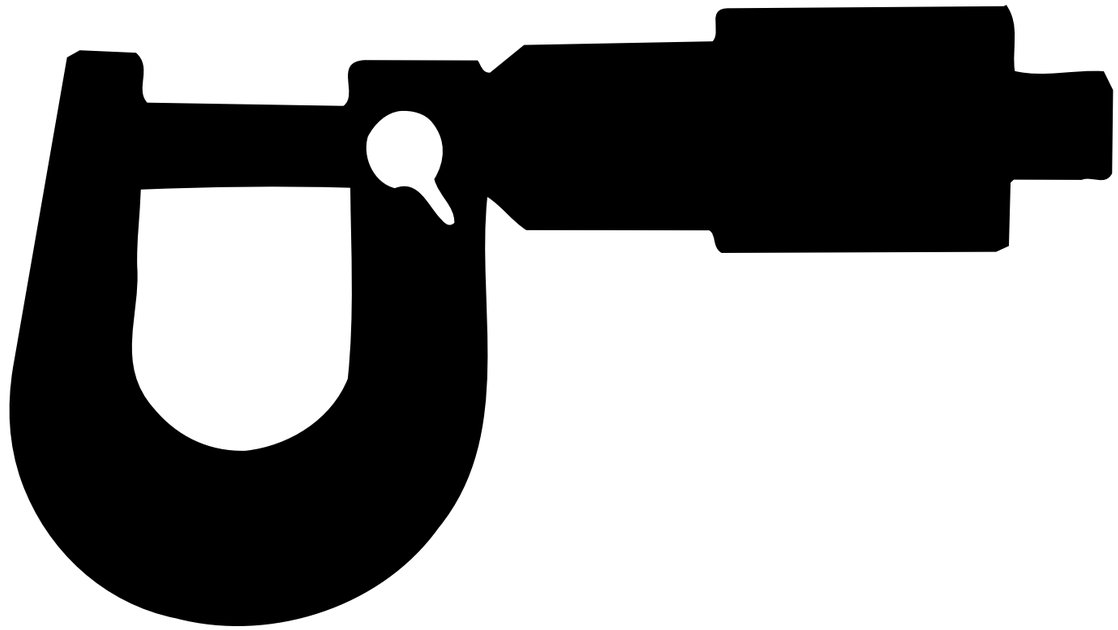
EAS00027
SPECIAL TOOLS

The following special tools are necessary for complete and accurate tune-up and assembly. Use only the appropriate special tools as this will help prevent damage caused by the use of inappropriate tools or improvised techniques. Special tools, part numbers or both may differ depending on the country.
When placing an order, refer to the list provided below to avoid any mistakes.

Tool No.	Tool name/usage	Illustration
90890-01083 90890-01084	Slide hammer bolt (M6) Weight These tools are used to remove or installing the rocker arms shafts.	
90890-01235	Rotor holding tool This tool is used to remove the flywheel magneto.	
90890-01268 90890-01403	Ring nut wrench ① Steering nut wrench ② These tools are used to loosen and tighten the steering ring nuts.	
90890-01294 90890-01326	Damper rod holder T-handle These tools are used for disassembling or assembling the front fork.	
90890-01304	Piston pin puller This tool is used to remove the piston pins.	
90890-01312	Fuel level gauge This tool is used to measure the fuel level in the float chamber.	
90890-01337 90890-01464	Clutch spring holder Clutch spring holder arm These tools are used for removing the nut with holding the compression spring.	

Tool No.	Tool name/usage	Illustration
90890-01367 90890-01368	Fork seal driver weight Frok seal driver attachment These tools are used when installing the fork seal.	
90890-01701	Sheave holder This tool is used to hold the secondary sheave when removing or installing the nut.	
90890-03111	Valve adjusting tool This tool is necessary for adjusting valve clearance.	
90890-03112	Pocket Tester This instrument is invaluable for checking the electrical system.	
90890-03113	Engine tachometer This tool is needed for detecting the engine rpm.	
90890-03141	Timing light This tool is needed for detecting ignition timing.	
90890-04019 90890-04108	Valve spring compressor Attachment These tools are used when removing or installing the valve and the valve spring.	
90890-04116	Valve guide remover This tool is used to remove the valve guide.	

Tool No.	Tool name/usage	Illustration
90890-04117	Valve guide installer This tool is needed to install the valve guide spring.	
90890-04118	Valve guide reamer This tool is used to rebore the valve guide.	
90890-06754	Ignition checker This instrument is necessary for checking the ignition system components.	
90890-85505	Yamaha bond No. 1215 This sealant (bond) is used for crankcase mating surface, etc.	
90890-03081	Compression gauge This gauge is used to measure the engine compression.	



SPEC 2

CHAPTER 2.
SPECIFICATIONS

GENERAL SPECIFICATIONS 2-1

MAINTENANCE SPECIFICATIONS 2-4
ENGINE 2-4
CHASSIS 2-8
ELECTRICAL 2-10

CONVERSION TABLE 2-12

GENERAL TIGHTENING TORQUE SPECIFICATIONS 2-13

TIGHTENING TORQUES 2-14
TIGHTENING TORQUES (ENGINE) 2-14
TIGHTENING TORQUES (CHASSIS) 2-16

LUBRICATION POINTS AND LUBRICANT TYPES 2-17
ENGINE 2-17
CHASSIS 2-18

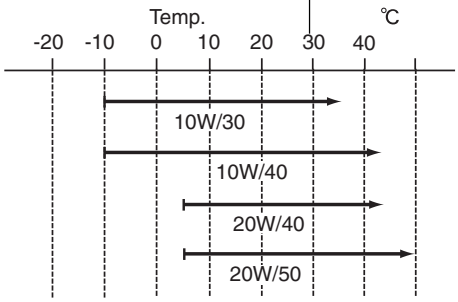
COOLING SYSTEM DIAGRAMS 2-19

LUBRICATION DIAGRAMS 2-21

CABLE ROUTING 2-23

SPECIFICATIONS

GENERAL SPECIFICATIONS

Item	XQ125 [XQ150]
Dimensions	
Overall length	1.920 mm
Overall width	750 mm
Overall height	1.180 mm
Seat height	824 mm
Wheelbase	1.400 mm
Minimum ground clearance	118 mm
Minimum turning radius	2.050 mm
Weight	
Wet (with oil and a full fuel tank)	130 kg
Dry (without oil and fuel)	124 kg
Engine	
Engine type	Liquid cooled 4-stroke, SOHC
Cylinder arrangement	Forward inclined single cylinder
Displacement	124 cm^3 [152 cm^3]
Bore x stroke	53.7 x 54.8 mm [59.5 x 54.8 mm]
Compression ratio	11: 1
Standard compression pressure (at sea level)	1.400kPa/500r/min (14kgf/cm^2/500r/min)
Starting system type	Electric starter
Lubrication system	Wet sump
Oil capacity	
Engine oil	 API STANDARD: SE, SF, SG Type or higher grade
Periodic oil change	1.2 L
Total amount	1.4 L
Final gear case oil	
Total amount	0.15 L
Coolant system	
Radiator capacity (including all routes)	1.25 L
Coolant reservoir capacity	0.35 L
<from low to full level>	<0.15 L>
Air filter type	Dry element
Fuel	
Recommended fuel	Regular unleaded gasoline
Fuel tank capacity	7.5 L

Item	XQ125 [XQ150]
Carburetor	
Type/quantity	TK 5DS/1 [TK 5KD/1]
Manufacturer	TEIKEI
Spark plug	
Type	CR8E
Manufacturer	NGK
Spark plug gap	0.5~0.7 mm
Clutch type	Dry, centrifugal automatic
Transmission	
Primary reduction system	Helical gear
Primary reduction ratio	40/15 (2.666)
Secondary reduction system	Spur gear
Secondary reduction ratio	44/12 (3.666) [42/14 (3)]
Transmission type	V-belt automatic
Operation	Centrifugal automatic type
Chassis	
Frame type	Steel tube backbone
Caster angle	25°
Trail	81.3 mm
Tyre	
Tyre type	Tubeless
Size (front)	130/60-13
Size (rear)	140/60-13
Manufacturer (front)	PIRELLI / CHENG SHIN
Manufacturer (rear)	PIRELLI / CHENG SHIN
Type (front)	SL36 / MAXXIS
Type (rear)	SL36 / MAXXIS
Tyre pressure (cold)	
Maximum load*-except motorcycle	187 kg
Up to 90 kg load*	
Front	190 kPa (1.90 kgf/cm^2)
Rear	200 kPa (2.00 kgf/cm^2)
90 kg load* ~ Maximum load*	
Front	200 kPa (2.00 kgf/cm^2)
Rear	220 kPa (2.20 kgf/cm^2)
* Load is total weight of cargo, rider, passenger and accessories except motorcycle	
Front wheel	
Wheel type	Cast wheel
Rim size	13 x MT3.00
Rear wheel	
Wheel type	Cast wheel
Rim size	13 x MT3.50

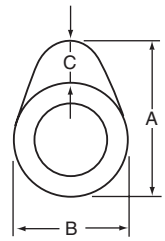
Item	XQ125 [XQ150]
Brake	
Front brake type	Single disc brake
Front brake operation	Right hand operation
Rear brake type	Single disc brake
Rear brake operation	Left hand operation
Suspension	
Front suspension	Telescopic fork
Rear suspension	Unit swing
Shock absorber	
Front fork type	Coil spring/oil damper
Rear shock absorber assembly type	Coil spring/oil damper
Wheel travel	
Front wheel travel	103 mm
Rear wheel travel	95 mm
Electrical	
Ignition system type	C.D.I
Charging system type	Flywheel magneto
Battery type	CB7L-B2 or YB7L-B2
Battery voltage/capacity	12V 8Ah
Headlight type	Bulb
Bulbs (voltage/wattage x quantity)	
Headlight	12V 35W/35W x 2
Auxiliary light	12V 5W x 2
Brake/taillight	12V 21W/5W x 1
Turn signal light	12V 10W x 4
Meter light	12V 1.2W x 2
High beam indicator light	12V 1.2W x 1
Turn indicator light	12V 1.2W x 2
Coolant temperature warning light	12V 1.2W x 1
Amperage for fuses	
Main fuse	20 A
Radiator fan fuse	7.5 A

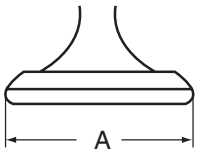
MAINTENANCE SPECIFICATIONS

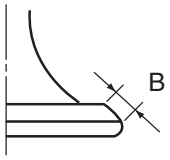
ENGINE

* [XQ 150]

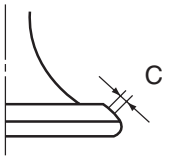
Item	Standard	Limit
Cylinder head		
Warp limit	•••	0.03 mm
Cylinder		
Bore size	53.700~53.705 mm [59.500~59.505 mm]*	•••
Out of round limit	•••	0.05 mm
Camshaft		
Drive system	Chain drive (left)	•••
Cam dimensions		
Intake "A"	30.811 ~ 30.911 mm	30.711 mm
"B"	25.145 ~ 25.245 mm	25.045 mm
"C"	5.666 m	•••
Exhaust "A"	30.811 ~ 30.911 mm	30.711 mm
"B"	25.152 ~ 25.252 mm	25.052 mm
"C"	5.659 m	•••
Camshaft runout limit	•••	0.03 mm
Cam chain		
Cam chain type/No. of links	82 RH2005/94	•••
Rocker arm/rocker armshaft		
Rocker arm inside diameter	12.000 ~ 12.018 mm	12.030mm
Rocker shaft outside diameter	11.981 ~ 11.991 mm	11.950 mm
Valve,valve seat, valve guide		
Valve clearance (cold) IN	0.10 ~ 0.14 mm	•••
EX	0.16 ~ 0.20 mm	•••
Valve dimensions		
"A" head diameter IN	26.9 ~ 27.1 mm	•••
EX	22.9 ~ 23.1 mm	•••
"B" face width IN	2.687 ~ 3.252 mm	•••
EX	2.687 ~ 3.252 mm	•••
"C" seat width IN	0.9 ~ 1.1 mm	•••
EX	0.9 ~ 1.1 mm	1.6 mm
Stem outside diameter IN	4.475 ~ 4.490 mm	4.445 mm
EX	4.460 ~ 4.475 mm	4.430 mm
Guide inside diameter IN	4.500 ~ 4.512 mm	4.542 mm
EX	4.500 ~ 4.512 mm	4.542 mm
Stem-to-guide clearence IN	0.01 ~ 0.037 mm	0.08 mm
EX	0.025 ~ 0.052	0.10 mm
Stem runout limit	•••	0.01 mm
Valve seat width IN	0.9 ~ 1.1 mm	1.6 mm
EX	0.9 ~ 1.1 mm	1.6 mm







Face width



Seat width

* [XQ 150]

Item		Standard	Limit
Valve spring			
Free length	IN/EX	41.94 mm	39.84 mm
Set length (valve closed)	IN/EX	37.5 mm	•••
Compressed pressure	IN/EX	45.1 ~ 50.9 N	•••
Tilt limit	IN/EX	2.5° / 1.9 mm	•••
Piston			
Piston to cylinder clearance		0.025 ~ 0.035 mm	0.15 mm
Piston size “D”		53.670~53.687 mm [59.470~59.487mm]*	•••
Measuring point “H”		4.5 mm	•••
Piston pin bore inside diameter		15.002~15.013 mm	15.045 mm
Piston pin outside diameter		14.991~15.000 mm	14.975 mm
Piston rings			
Top ring:			
Type		Barrel	•••
End gap (installed)		0.15 ~ 0.25 mm	0.50 mm
Side clearance (installed)		0.03 ~ 0.07 mm	0.12 mm
2 nd ring:			
Type		Taper	•••
End gap (installed)		0.15 ~ 0.30 mm	0.65 mm
Side clearance (installed)		0.02 ~ 0.06 mm	0.12 mm
Oil ring:			
End gap (installed)		0.2 ~ 0.7 mm	•••
Crankshaft			
Crank width “A”		47.950 ~ 48.000 mm	•••
Runout limit “C”		•••	0.03 mm
Big end side clearance “D”		0.15 ~ 0.45 mm	•••
Automatic centrifugal clutch			
Clutch shoe thickness		2.0 mm	1.0 mm
Clutch housing inside diameter		120 mm [135 mm]*	120.5 [135.5]*
Weight outside diameter		20.0 mm	19.5 mm
Clutch-in revolution		3,550 ~ 4,050 rpm [3,250 ~ 3,750 rpm]*	•••
Clutch-stall revolution		5,900 ~ 6900 rpm [5,600 ~ 6,400 rpm]*	•••
V-Belt			
V-belt width		22 mm	19 mm

* [XQ 150]

Item	Standard	Limit
Carburetor		
Type	TK 5DS [TK 5KD]*	
I.D mark	•••	
Main jet (M.J)	#116 [#114]	•••
Main air jet (M.A.J)	ø1.0 [ø1.4]	•••
Jet needle (J.N)	4E31 (3/5) [4E32 (3/5)]*	•••
Pilot air jet (P.A.J.1)	ø1.30	•••
Needle jet (N.J)	2.590	•••
Pilot jet (P.J)	#38 [#36]	•••
Pilot screw (P.S)	2 1/4 ~ 2 3/4 [2 ~ 4]*	•••
Valve seat size (V.S)	ø2.00	•••
Starter jet 1 (G.S.1)	#45	•••
Float height (F.L)	5 ~ 6 mm	•••
Engine idle speed	1.600 ~ 1.800 rpm	•••
Oil pump		
Type	Trochoid	•••
Tip clearence	•••	0.15 mm
Side clearance	•••	0.15 mm
Housing and rotor clearence	•••	0.17 mm
Radiator		
Type	Cooling fin with electric fan	•••
Width/height thickness	170 / 282 / 23 mm	•••
Radiator cap opening pressure	100 ~ 120 kPa	•••
Reservoir tank capacity	0.35 L	•••
Thermostatic valve		
Manufacturer	ANGLI	•••
Valve opening temperature	82 °C	•••
Valve full open temperature	95 °C	•••

Item	Size
Crankshaft oil seal (left)	22 x 32 x 7
Crankshaft oil seal (right)	19 x 30 x 8 (Reinforced)
Crankshaft oil seal (right)	19 x 30 x 8 (Double lips)
Camshaft bearing (left)	20 x 42 x 12
Camshaft bearing (right)	15 x 32 x 9
Starter clutch bearing	17 x 35 x 10
Primary drive gear bearing (left)	25 x 52 x 15
Primary drive gear bearing (right)	17 x 40 x 12
Primary drive gear oil seal	25 x 42 x 6 (Double lips)
Main axle bearing (left)	15 x 25 x 12 (Needle bearing)
Main axle bearing (right)	12 x 37 x 12
Drive axle bearing (left)	17 x 47 x 14 (Sphere)
Drive axle bearing (right)	22 x 50 x 14 (Sphere)
Drive axle oil seal	32 x 52 x 7

MAINTENANCE SPECIFICATIONS

CHASSIS

Item		Standard	Limit
Steering system			
Steering bearing type		Ball bearing	•••
Front suspension			
Front fork travel		103 mm	•••
Spring rate	(K1)	6.1 N/mm	•••
	(K2)	7.8 N/mm	•••
Stroke	(K1)	0 ~ 11 mm	•••
	(K2)	11 ~ 87 mm	•••
Oil capacity		120 cm^3	•••
Oil grade		SAE20	•••
Inner tube outer diameter		33 mm	•••
Optional spring		No	•••
Rear suspension			
Shock absorber travel		95 mm	•••
Fitting length		294 mm	•••
Spring rate	(K1)	8 N/mm	•••
	(K2)	12 N/mm	•••
	(K3)	18 N/mm	•••
Stroke	(K1)	0 ~ 70 mm	•••
	(K2)	70 ~ 100 mm	•••
	(K3)	100 ~ 130 mm	•••
Spring preload adjusting position			
Minimum		1	•••
Standard		1	•••
Maximum		4	•••
Front wheel			
Type		Cast wheel	•••
Rim size		MT 3.00 x 13	•••
Rim material		Aluminium	•••
Rim runout limit	Radial	•••	1 mm
	Lateral	•••	0.5 mm
Rear wheel			
Type		Cast wheel	•••
Rim size		MT 3.50 x 13	•••
Rim material		Aluminium	•••
Rim runout limit	Radial	•••	1 mm
	Lateral	•••	0.5 mm

Item	Standard	Limit
Front disc brake		
Type	Single disc brake	•••
Disc outside diameter x thickness	245 x 4.7 mm	•••
Min. thickness	•••	4.2 mm
Max deflection	•••	0.15 mm
Pad thickness	4 mm	0.8 mm
Master cylinder inside diameter	13 mm	•••
Caliper cylinder outside diameter	28 mm	•••
Brake fluid type	DOT #3 or DOT #4	•••
Rear brake		
Type	Single disc brake	•••
Disc outside diameter x thickness	220 x 4.5 mm	•••
Min. thickness	•••	4.0 mm
Max deflection	•••	0.15 mm
Pad thickness	4 mm	0.8 mm
Master cylinder inside diameter	12 mm	•••
Caliper cylinder outside diameter	32 mm	•••
Brake fluid type	DOT #3 or #4	•••
Brake lever		
Brake lever free play (front)	10 ~ 20 mm	•••
Brake lever free play (rear)	10 ~ 20 mm	•••
Throttle cable free play	1.5 ~ 3.0 mm	•••

MAINTENANCE SPECIFICATIONS

ELECTRICAL

Item	Standard	Limit
Ignition timing		
Ignition timing (B.T.D.C)	10° at 1.700 rpm	•••
Advanced timing (B.T.D.C)	26° at 4.500 rpm	•••
Advancer type	Digital	•••
Ignition system		
Pickup coil resistance	248 ~ 372 Ω at 20°C	•••
Source coil resistance	720 ~ 1080 Ω at 20°C	•••
Ignition coil		
Manufacturer	MORIYAMA	
Minimum spark gap	0.5 mm	•••
Primary coil resistance	0.32 ~ 0.48 Ω at 20°C	•••
Secondary coil resistance	5.7 ~ 8.5 kΩ at 20°C	•••
Spark plug cap		
Type	Resin type	•••
Resistance	10 kΩ	•••
Charging system		
Type	Flywheel magneto	•••
Normal output	14 V 170W at 5.000 rpm	•••
Stator coil resistance	0.6 ~ 0.9 Ω at 20°C	
Rectifier/regulator		
Model/manufacturer	04012001 / FACOMSA	
No load regulated voltage	14.5 V	•••
Capacity	25 A	•••
Withstand voltage	200 V	•••
Battery		
Specific gravity	1.280	•••
Electric starting system		
Type	Constant mesh type	•••
Starter motor:		
Operation voltage	12 V	•••
Output	0.3 kW	•••
Armature coil resistance	0.0306 ~ 0.0374 Ω at 20°C	•••
Brush overall length	10 mm	3.5 mm
Brush quantity	2	•••
Spring force	5.6 ~ 8.3 N	
Commutator diameter	22 mm	21 mm
Mica undercut (depth)	1.5 mm	•••
Starter relay		
Model/manufacturer	9768054 / JIDECO	•••
Amperage rating	100 A	•••
Coil winding resistance	4.2 ~ 4.6 Ω at 20°C	•••

Item	Standard	Limit
Horn		
Model/manufacturer	YF-12 / NIKKO	•••
Maximum amperage	3 A	•••
Turn signal relay		
Model/Manufacturer	800 TRANSVAL / 01.2320.01 GUILERA	•••
Turn signal blinking frequency	65 ~ 95 cycles/min. / 70 ~ 90 cycles/min.	•••
Fuel gauge		
Model/manufacturer	25.33.07 / MAXIMA	•••
Sender unit resistance – full	4 ~ 10 Ω	•••
– empty	90 ~ 100 Ω	•••
Circuit breaker		
Main	20 A x 1 pcs	•••
Radiator fan fuse	7.5 A x 1 pcs	•••

AS00028
CONVERSION TABLE

All specification data in this manual are listed in SI and METRIC UNITS.
Use this table to convert METRIC unit data to IMPERIAL unit data.
Ex.

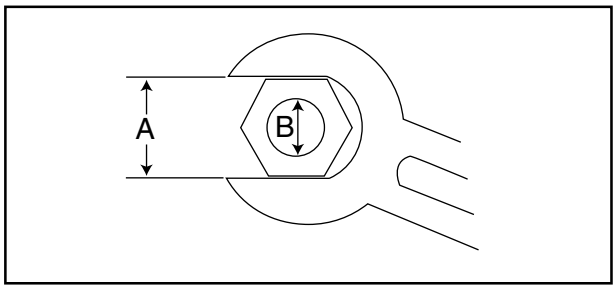
METRIC		MULTIPLIER		IMPERERIAL
** mm	x	0.03937	=	** in
2 mm	x	0.03937	=	0.08 in

CONVERSION TABLE

METRIC TO IMPERIAL			
	Metric unit	Multiplier	Imperial unit
Torque	m•kg m•kg cm•kg cm•kg	7.233 86.794 0.0723 0.8679	ft•lb in•lb ft•lb in•lb
Weight	kg g	2.205 0.03527	lb oz
Speed	km/h	0.6214	mph
Distance	km m m cm mm	0.6214 3.281 1.094 0.3937 0.03937	mi ft yd in in
Volume/ Capacity	cc (cm^3) cc (cm^3) L (liter) L (liter)	0.03527 0.06102 0.8799 0.2199	oz(IMP liq.) cu•in qt(IMP liq.) gal(IMP liq.)
Misc.	kg/mm kg/cm^2 Centigrade (°C)	55.997 14.2234 9/5+32	lb/in psi(lb/in^2) Fahrenheit (°F)

EAS00029
GENERAL TIGHTENING TORQUE SPECIFICATIONS

This chart specifies tightening torques for standard fasteners with a standard ISO thread pitch. Tightening torque specifications for special components or assemblies are provided for each chapter of this manual. To avoid warpage, tighten multi-fastener assemblies in a crisscross pattern and progressive stages until the specified tightening torque is reached. Unless otherwise specified, tightening torque specifications require clean, dry threads. Components should be at room temperature.



A: Width across flats
B: Thread diameter

A (nut)	B (bolt)	General tightening torques	
		Nm	m•kg
10 mm	6 mm	6	0.6
12 mm	8 mm	15	1.5
14 mm	10 mm	30	3.0
17 mm	12 mm	55	5.5
19 mm	14 mm	85	8.5
22 mm	16 mm	130	13.0

TIGHTENING TORQUES

ENGINE

Item	Fastener	Thread size	Q'ty	Tightening torque		Remarks
				Nm	m•kg	
Oil check bolt	Bolt	M6	1	9	0.9	
Spark plug	-	M10	1	13	1.3	
Cylinder, water drain bolt	Bolt	M6	1	8	0.8	
Cylinder head and cylinder	Nut	M8	4	22	2.2	
Cylinder head and cylinder	Bolt	M6	2	12	1.2	
Cylinder and crankcase	Bolt	M6	1	12	1.2	
Camshaft bearing stopper	Bolt	M6	1	12	1.2	
Camchain guide	Bolt	M6	1	6.5	0.65	
Valve adjuster nut	Nut	M5	2	6.5	0.65	
Camshaft pinion bolt	Bolt	M8	1	30	0.3	
Camshaft tensionner	Bolt	M6	2	10	1.0	
Rocker shaft securing plate	Bolt	M6	1	10	1.0	
Thermostatic valve cover	Bolt	M6	1	9	0.9	
Water pump housing cover	Bolt	M6	4	10	1.0	
Water pump housing	Bolt	M6	2	7	0.7	
Water pump housing	Bolt	M6	1	7	0.7	
Thermostatic valve cover	Bolt	M6	2	9	0.9	
Oil pump	Bolt	M6	3	65	6.5	
Engine drain plug		M35	1	32	3.2	
Inlet manifold on cylinder head	Bolt	M6	2	10	1.0	
Air filter cover	Bolt	M6	4	6.5	0.65	
V-belt air filter cover	Bolt	M6	4	6.5	0.65	
Crankcase (left)	Bolt	M6	8	9	0.9	
Cover, crankcase 1	Bolt	M6	11	10	1.0	
Cover, crankcase 2	Bolt	M6	6	10	1.0	
Cover, oil pump	Bolt	M6	3	6.5	0.65	
Duct, air	Bolt	M6	3	7	0.7	
Cover, magneto	Bolt	M6	3	7	0.7	
Cylinder head stud bolt	Stud	M8	4	13	1.3	
Transmission oil drain plug	Plug	M8	1	22	2.2	
Engine oil drain plug	Plug	M8	1	22	2.2	
Cover, crankcase 3	Bolt	M6	2	6.5	0.65	
Starter idle gear plate	Bolt	M6	2	7	0.7	
Primary fixed sheave	Nut	M14	1	60	6.0	
Clutch carrier assembly	Nut	M36	1	90	9.0	
Clutch housing	Nut	M12	1	55	5.5	

TIGHTENING TORQUES

Item	Fastener	Thread size	Q'ty	Tightening torque		Remarks
				Nm	m•kg	
Thermo unit	-	Pt 1/8	1	75	7.5	
Coolant drain bolt on cylinder	Bolt	M6	1	8	0.8	
Starter motor	Bolt	M6	2	65	6.5	
Rotor	Nut	M12	1	70	7.0	
		M16	1	225	22.5	
		M16	1	225	22.5	
Stator	Bolt	M6	3	70	7.0	

TIGHTENING TORQUES

CHASSIS

Item	Fastener	Thread size	Q'ty	Tightening torque		Remarks
				Nm	m•kg	
Frame with engine bracket	Bolt	M10	1	42	4.2	
Engine bracket 2 with 3	Bolt	M10	2	55	5.5	
E/G bracket with E/G (with main stand)	Bolt	M10	2	42	4.2	
Exhaust pipe stud bolt on cylinder	Nut	M6	2	11	1.1	
Muffler on rear arm	Bolt	M8	3	27	2.7	
Rear arm on crankcase	Bolt	M8	2	27	2.7	
Muffler protector	Bolt	M6	2	4.5	0.45	
Seat rail with frame	Bolt	M8	8	26	2.6	
Rear cushion with frame	Nut	M10	1	32	3.2	
Rear cushion with engine	Nut	M8	1	18	1.8	See chapter 7 "STEERING HEAD"
Steering shaft	Nut	M25	3			
Handle with steering shaft	Nut	M10	1	60	6.0	
Master cylinder with handle	Bolt	M6	2	8.5	0.85	
Seat lock	Bolt	M6	2	4	0.4	
Box with seat rail	Bolt	M6	2	8	0.8	
Fuel cock with tank				2.5	0.25	
Handle seat with frame	Bolt	M6	4	4	0.4	
Box with fuel tank	Bolt	M6	2	4	0.4	
Screw tapping in plastic	Bolt	ø5		3.25	0.33	
Screw tapping in clip	Bolt	ø5		2.25	0.23	
Footrest board with frame	Bolt	M6	3	4	0.4	
Fender on front fork	Bolt	M6	3	4	0.4	
Cover handle with handle	Bolt	M5	2	4.5	0.45	
Mainstand	Nut	M10	2	42	4.2	
Front wheel axle	Nut	M12	1	70	7.0	
Rear wheel axle	Nut	M14	1	104	10.4	
Front caliper on front fork	Bolt	M8	2	23	2.3	LT
Rear caliper on rear arm	Bolt	M8	2	23	2.3	
Front brake disc on wheel	Bolt	M8	6	23	2.3	
Rear brake disc on wheel	Bolt	M8	5	23	2.3	
Union bolt with caliper	Bolt	M10	1	23	2.3	
Union bolt with master cylinder	Bolt	M10	1	23	2.3	

EAS00031
LUBRICATION POINTS AND LUBRICANT TYPES
ENGINE

Lubrication Point	Symbol
Oil seal lips	LS
O-ring (Except V-belt drive unit)	LS
Cylinder head tightening nut mounting surface	E
Crankshaft pin outside	E
Connecting rod big end thrust surface	E
Rotary filter inner surface	E
Drive gear inner surface	E
Cam chain outside sprocket inner surface	E
Piston pin	E
Piston outside and ring groove	E
Camshaft cam profile	M
Valve stem (IN, EX)	M
Valve stem end (IN, EX)	M
Rocker shaft	E
Valve rocker arm inner surface	M
Shaft	E
Shaft (Oil pump assembly)	E
Gasket (Oil pump assembly)	LS
Holder	LS
Idle gear 1 thrust surfaces	E
Shaft 1	E
Idle gear 2 thrust surfaces	E
Idle gear 2 inner surface	E
Main axle thrust surfaces	E
Crankcase mating surfaces	Yamaha bond No. 1215
Crankcase breather plug	LT
Stator grommet	Yamaha bond No. 1215
Suction pipe	LT

LUBRICATION POINTS AND LUBRICANT TYPES

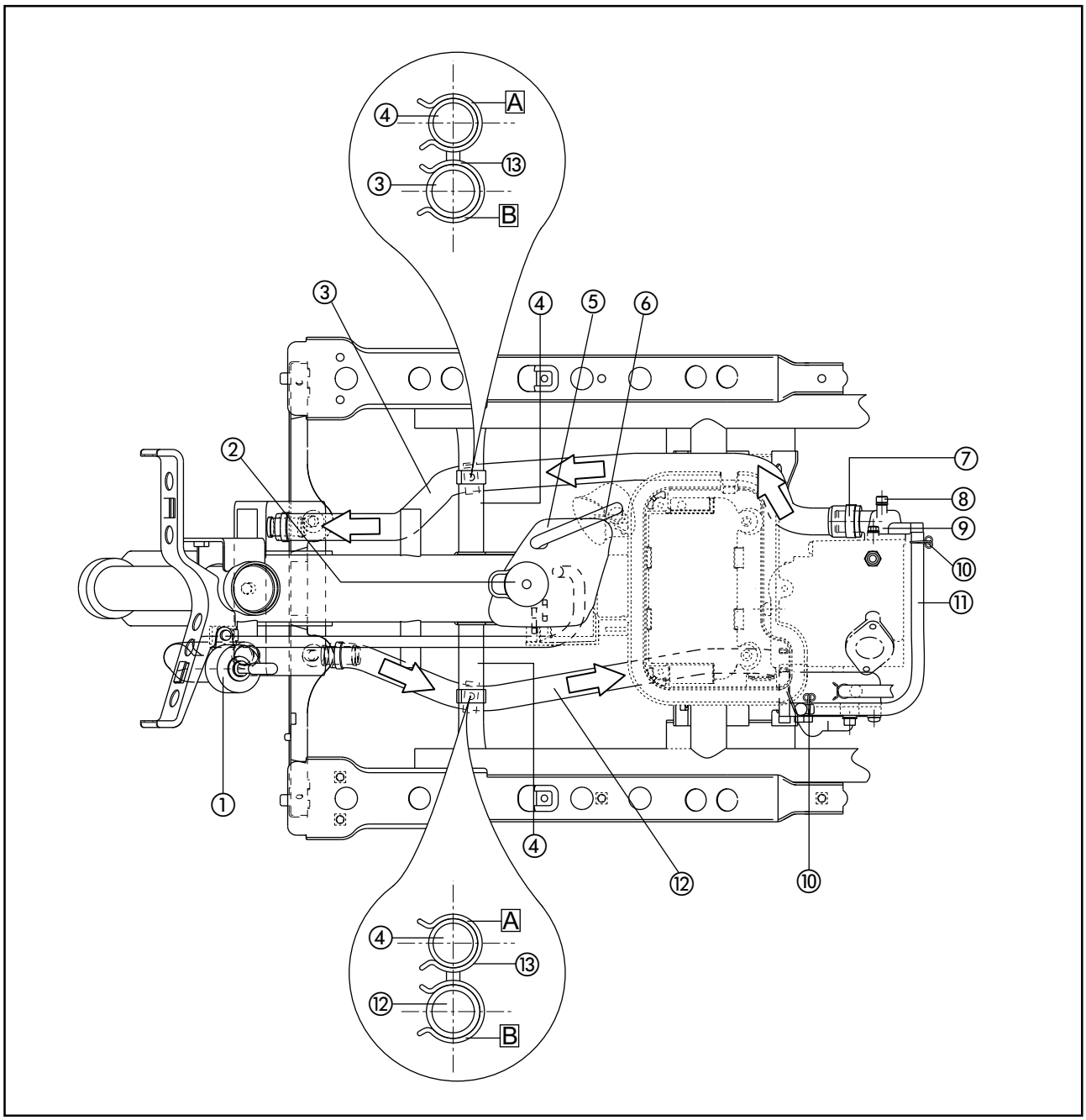
EAS00032
CHASSIS

Lubrication Point	Symbol
Front wheel oil seal lips (left/right)	LS
Steering head pipe bearing (upper/lower)	LS
Tube guide (throttle grip) inner surface	LS
Brake cable (brake lever)	LS
Brake lever and lever holder bolt sliding surface	LS
Sidestand sliding surface	LS
Centerstand sliding surface and mounting bolt	LS
Centerstand stopper pivot shaft	LS

EAS00033
COOLING SYSTEM DIAGRAMS

① Radiator cap
② Coolant tank cap
③ Coolant hose (cylinder head outlet)
④ Frame
⑤ Coolant tank
⑥ Coolant tank breather hose
⑦ Clip
⑧ Drain bolt
⑨ Thermo switch cover
⑩ Clip
⑪ Hose
⑫ Coolant hose (pump inlet)
⑬ Clamp

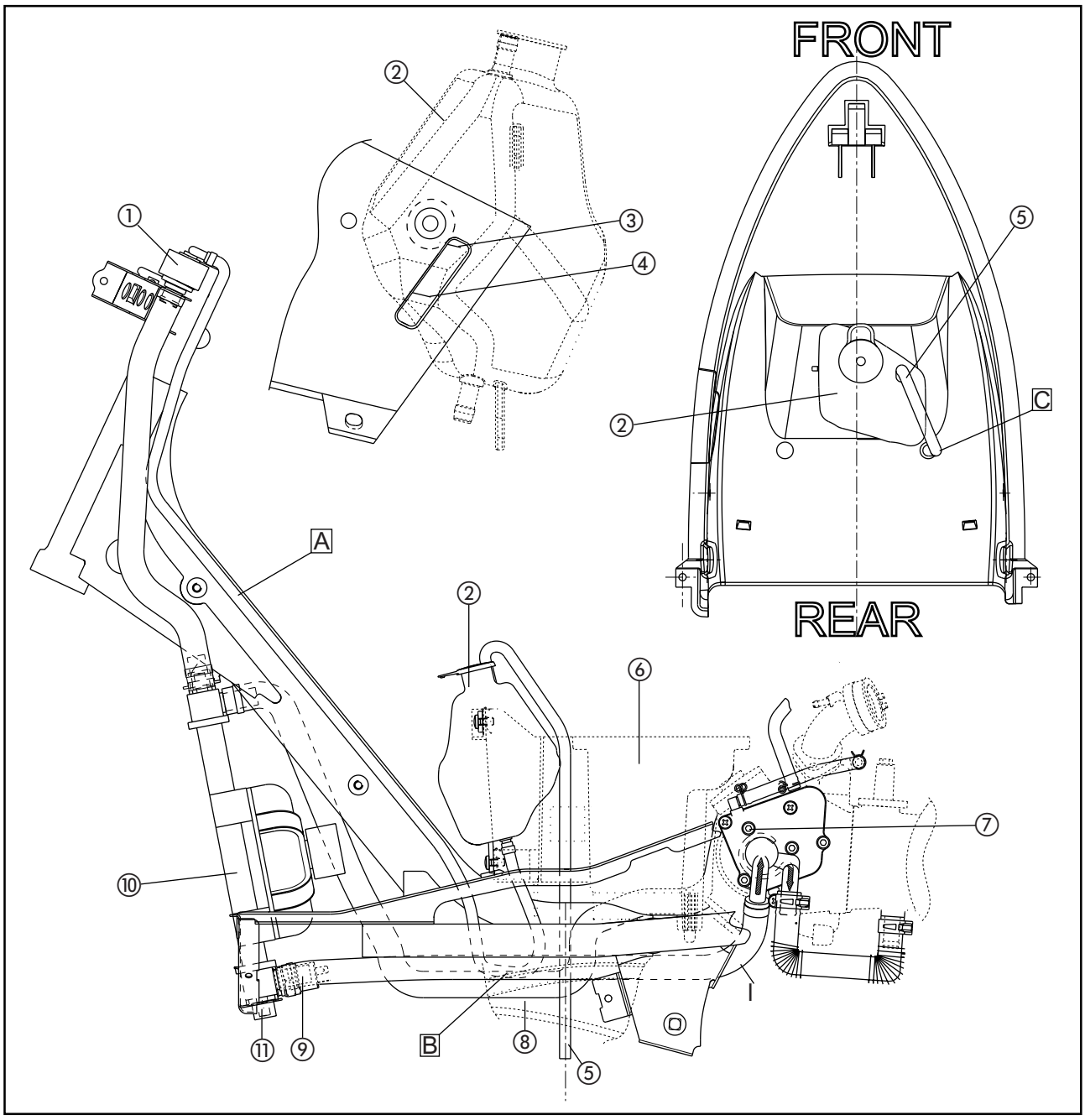
A Keep the smaller diameter for fixing on the frame (ø 22).
B Keep the larger diameter for fixing the hose (ø 24).



EAS00033(bis)
# COOLING SYSTEM DIAGRAMS

① Radiator cap
② Coolant tank
③ Coolant upper level mark
④ Coolant lower level mark
⑤ Coolant tank breather hose
⑥ Battery box
⑦ Drain bolt (on water pump)
⑧ Under cover
⑨ Thermo switch (on radiator)
⑩ Radiator
⑪ Grommet
⑫ Coolant hose (pump inlet)

A Pass the hose under the seat rail fixation.
B Pass the hose under the frame down tube.
C Pass the hose through the under cover.



EAS00034
LUBRICATION DIAGRAMS

1 Lubrication of the cylinder head
① Cylinder head
② Cylinder
③ Crankcase
2 Lubrication of the crankshaft
① Crankshaft